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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/774,749	02/09/2004	Ray J. Hutchinson	2400-756D	6142
27820	7590	11/07/2005	EXAMINER	
WITHROW & TERRANOVA, P.L.L.C. P.O. BOX 1287 CARY, NC 27512			LARKIN, DANIEL SEAN	
			ART UNIT	PAPER NUMBER
			2856	

DATE MAILED: 11/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

AGW

Office Action Summary	Application No. 10/774,749	Applicant(s) HUTCHINSON ET AL.	
	Examiner Daniel S. Larkin	Art Unit 2856	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 October 2005.
 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14, 16-21 and 34 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) ☐ Claim(s) _____ is/are allowed.
 6) ☒ Claim(s) 1, 3, 4, 6-10, 14, and 16-18 is/are rejected.
 7) ☐ Claim(s) 2, 5, 11-13, 19-21 and 34 is/are objected to.
 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>20 October 2005</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. The indicated allowability of claims 1, 3, 4, and 18 is withdrawn in view of the newly discovered reference(s) to US 3,183,723 (Deters). Rejections based on the newly cited reference(s) follow.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 3, 4, and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by US 3,183,723 (Deters).

With respect to the limitations of claim 1, the reference to Deters discloses a leak detector, comprising: a submersible pump (13), which further includes: a power head (16); means for drawing a vacuum and fuel to the power head (16); a casing (18) surrounding the power head (16), the casing (18) comprising an interior space; and a pressure sensor (41) coupled to the interior space to measure a vacuum level within the interior space.

With respect to the limitation of claim 3, reference to Figure 1 of Deters appears to show the pump (13) positioned within a boom.

With respect to the limitation of claim 4, reference to Figures 2 -4 appears to show the pressure sensor (41) positioned in the interior space.

With respect to the limitation of claim 18, reference appears to suggest that the casing is fluid-tight because reference is made to detecting the casing for leaks, col. 3, lines 74-75 through col. 4, lines 1-3.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 6-10, 14, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 3,183,723 (Deters) in view of US 5,927,762 (Webb).

With respect to the limitation of claim 6, the reference to Deters discloses when a certain leak condition is determined, an operator of the system is made aware of the leak; however, fuel may be dispensed at a reduced flow rate. The reference to Deters fails to expressly disclose the presence of a sensing unit controller coupled to the pressure sensor to determine the vacuum level in the interior space.

The reference to Webb discloses means for detecting the presence of leaks within a piping assembly, whereby a sensing unit controller (303a) determines the vacuum level in a sealed space using a pressure sensor/vacuum gauge (307a). Modifying the teaching of Deters to providing a computerized sensing unit controller would have been obvious to one of ordinary skill in the art as a means of eliminating

potential human error by automating the leak detection process, which would more accurately identify and deal with potentially hazardous leak conditions.

With respect to the limitation of claim 7, the reference to Deters discloses fails to disclose the presence of an electric tank monitor coupled to the submersible pump.

The reference to Webb appears to disclose that a tank/system monitor (301a) is electrically coupled to the pump to create an initial threshold vacuum in the outer annular space after receiving a signal from the tank/system monitor (301a). The reference to Webb additionally discloses that the monitoring system (301a) measures and controls the vacuum pulled on the outer annular/interstitial space, such that the primary pump can be shut down during an emergency. Modifying the teachings of Deters to provide a tank monitor electrically coupled to the pump would have been obvious to one of ordinary skill in the art as a means placing the interior space under a initial vacuum so that the testing sequence can start with an initial pressure value which can be compared with the current working conditions in order to determine if a leak is present within the system.

With respect to the limitation of claim 8, the reference to Deters discloses that an operator is made aware of a leak greater than a predetermined threshold; however, the reference fails to disclose an alarm condition is activated when an adequate vacuum cannot be held within the system.

The reference to Webb discloses that the integrity of the pipe coupling assembly is tested by applying a vacuum to the interstitial spaces of the pipe segments and that if the vacuum fails to hold over a reasonable period of time, the system is defined to have

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one or more fluid leaks. The reference further discloses that the system is provided with an alarm system to alert an operator of a failure of the piping system. Modifying the teaching of Deters to provide activation of an alarm due to the system not retaining an adequate vacuum would have been obvious to one of ordinary skill as a means of alerting an operator to a potentially hazardous spill and well as eliminating the need and expense involved with cleanup of leaked fuel from the environment.

With respect to the limitation of claim 9, the reference to Deters discloses that an operator is made aware of a leak greater than a predetermined threshold; however, the reference fails to disclose coupling a tank monitor to the submersible pump and the pressure sensor to measure the vacuum level within the interior space.

The reference to Webb discloses that the integrity of the pipe coupling assembly is tested by applying a vacuum to the interstitial spaces of the pipe segments and that if the vacuum fails to hold over a reasonable period of time, the system is defined to have one or more fluid leaks. The reference further discloses that the system is provided with an alarm system to alert an operator of a failure of the piping system. Additionally, the tank monitor is coupled to the primary pump of the system, such that the pump can be shut down during an emergency. It is the examiner's position at some point an initial determination of the system's vacuum is determined to establish whether the leaks are present. If the situation warrants an alarm signal, then one is provided. Should the situation be more severe, an alarm is given and the pump is shutdown. Modifying the teaching of Deters to connect the tank monitor to both the pump and the pressure sensor would have been obvious to one of ordinary skill in the art as a means of quickly

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averting a hazardous leak condition by automatically shutting down the pumping of the fuel should a leak condition be determined by the pressure sensor and the tank monitor.

With respect to the limitations of claim 10, the reference to Deters fails to disclose a tank monitor that determines if a vacuum has decayed to a threshold level from an initial threshold level.

The reference to Webb discloses that the integrity of the pipe coupling assembly is tested by applying a vacuum to the interstitial spaces of the pipe segments and that if the vacuum fails to hold over a reasonable period of time, the system is defined to have one or more fluid leaks. The reference further discloses that the system is provided with an alarm system to alert an operator of a failure of the piping system. Additionally, the primary pump of the system can be shut down during an emergency. It is the examiner's position that given that the system continually tests the vacuum of the system, that after some initial starting point, the system will decide if a leaky condition has appeared or become worse in order to warrant an alarm signal or alternatively turn the primary pump off should the conditions warrant that emergency action. Modifying the teachings of Deters to provide means to compare a current vacuum level with a starting vacuum level would have been obvious to one of ordinary skill in the art as a means to first identify whether a leak condition is present. Second, a comparison measurement would allow one to further determine whether additional action should be taken in response to the vacuum measurement.

With respect to the limitation of claim 14, the reference to Deters fails to disclose a tank monitor used to determine if a vacuum level decays to a threshold vacuum level in a predetermined period of time.

The reference to Webb discloses that the integrity of the pipe coupling assembly is tested by applying a vacuum to the interstitial spaces of the pipe segments and that if the vacuum fails to hold over a reasonable period of time, the system is defined to have one or more fluid leaks. It is the examiner's position at some point an initial determination of the system's vacuum is determined to establish whether the leaks are present. If the situation warrants an alarm signal, then one is provided. Should the situation be more severe, an alarm is given and the pump is shutdown. Modifying the teaching of Deters to provide a tank monitor to monitor the time it take the system to create a vacuum within the system would have been obvious to one of ordinary skill in the art as a means of quickly determining if a leak condition exists by using a well-known process of simply monitoring the time the amount of time necessary to create the threshold vacuum.

With respect to the limitation of claim 16, the reference to Deters fails to disclose the use of a liquid detector placed within the interior space.

The reference to Webb discloses that in addition to monitoring the pressure within a sealed space a liquid detector may also be used within the vacuum system, col. 7, lines 55-57. Modifying the system of Deters to provide for a liquid sensor would have been obvious to one of ordinary skill in the art as a means of providing a redundant system for detecting the presence of a fuel leak.

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6. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over US 3,183,723 (Deters) in view of US 5,927,762 (Webb) as applied to claim 16 above, and further in view of US 6,223,765 (Small et al.).

With respect to the limitation of claim 17, the references to Deters and Webb both fail to disclose a liquid sensor comprised of a float.

The reference to Small et al. discloses a casing construction for a fuel dispensing system, whereby the system comprises a casing, which encompasses a power head; and a liquid detector comprising a float located on the floor of the casing. Modifying the invention of Deters in view of Webb to provide a liquid sensor comprising a float would have been obvious to one of ordinary skill in the art as an accurate and inexpensive device used to the presence of a liquid leak.

Allowable Subject Matter

7. The following is a statement of reasons for the indication of allowable subject matter:

Prior art was not relied upon to reject claims 2, 5, 11-13, 19-21, and 34 because the prior art fails to teach and/or make obvious the following:

Claim 2: Providing a system for detecting a leak comprising a vacuum source, which comprises a siphon line generated by a venturi within a power head in combination with all of the limitations of the base claim.

Claims 5, 19-21, and 34: Providing a system for detecting a leak, whereby the system comprises vacuum tubing with a pressure sensor coupled to the vacuum tubing in combination with all of the limitations of the base claim.

Claims 11-13: Providing a system for detecting a leak, whereby the system comprises a tank monitor that activate a submersible pump to attempt to lower a vacuum level in an interior space back down to a defined initial threshold vacuum level if the vacuum level in the interior space decays to a threshold vacuum level in combination with all of the limitations of the base claim and all intervening claims.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel S. Larkin whose telephone number is 571-272-2198. The examiner can normally be reached on 8:00 AM - 5:00 PM Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron Williams can be reached on 571-272-2208. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.


Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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Daniel Larkin
AU 2856
01 November 2005



DANIEL S. LARKIN
PRIMARY EXAMINER